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10/535,157	05/16/2005	Helmuth Eggers	3926.150	5769

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EXAMINER	
IGYARTO, CAROLYN	
ART UNIT	PAPER NUMBER
2884	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/535,157	EGGERS ET AL.	
	Examiner	Art Unit	
	CAROLYN IGYARTO	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-7,9 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7,9 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 21 July 2008 was accepted and entered. Accordingly, changes have been made to the specification. Claim 1 has been amended. Claims 3 and 8 have been cancelled. No new claims have been added. Thus, claims 1-2, 4-7, and 9-10 are currently pending in this application.

2. In view of the amendment, received 21 July 2008, the previous objections to the claims have been withdrawn.

Response to Arguments

3. Applicant's arguments filed 21 July 2008 have been fully considered but they are not persuasive.

4. Applicant argues that Kishida does not teach prioritization of component regions. The Examiner respectfully disagrees. Kishida teaches giving priority based on an object and location and therefore teaches prioritization of zones.

5. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., pre-assigns priority to different scanned zones or component regions and prioritization, to allow higher interest areas to be processed first or more often) are not

recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

6. Applicant argues that Nishigaki does not disclose or suggest dividing regions into lane and tolerance regions next to the lane. Kishida further teaches that the perception region is restricted to the lane ([0013]). Kishida does not explicitly teach defining a tolerance region next to said lane, restricting the perception region to the lane and the tolerance region or issuing a warning to a driver of the road vehicle based on a result of the evaluation.

Tolerances are often included in engineering applications to account for variations in system components and objects being viewed. As Nishigaki et al. suggests, tolerances are often included in image processing and distance calculations in an object recognition system (col. 7, lines 1-19). Although such tolerances apply to the calculation of distances, one of ordinary skill in the art would recognize the need for tolerances, especially in view of pixel performance (col. 7, lines 3-5) as well as the possible location of relevant objects just outside or between lanes (see, for example, Maekawa Figure 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a tolerance region with the lane, so as to account for variations in imaging performance, as taught by Nishigaki et al., and to account for relevant object outside or between lanes, as seen in the teachings of Maekawa.

Also, in regards to the size of the perception region (i.e. lane region + tolerance region), the limitations of the claim can be construed as a discussion of optimum value for the perception region. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a perception region equal to a lane region plus a tolerance region, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

8. Applicant's arguments with respect to the rejection under 35 USC 112 of claim 1 have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's arguments, filed 21 July 2008, with respect to the rejection under 35 USC 112 to claim 10 have been fully considered and are persuasive. The rejection under 35 USC 112 of claim 10 has been withdrawn.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1-2, 4-7, and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Classifying the detected objects as to relevance and assigning an evaluation priority to each component region on the basis of the relevance of the objects detected in the component region do not appear to be in the original disclosed.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishida (US 2003/0222812) in view of Nishigaki et al. (US 6,775,395), Maekawa (US 5,530,771), and Morcom (International Patent Application Publication WO 02/082201).

15. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

16. In view of **claim 1**, Kishida teaches a method for sensing the surroundings in front of a road vehicle by means of a surroundings sensing system, in which surroundings data is obtained by means of a surroundings sensor, and objects are detected by processing the surroundings data (Abstract; [0047] line 8; [0002]), the method comprising:

defining a perception region corresponding to a partial region of a region sensed by the surroundings sensor ([0013]; [0042] lines 6-9),

defining a lane, defining a region outside said lane ([0013]; [0046]),

dividing the perception region into a plurality of component regions ([0013]),

sensing surroundings within the perception region via a surroundings sensor to obtain surroundings data ([0030], lines 9-15),

processing the surroundings data to detect objects ([0030] lines 13-15),

classifying the detected objects as to relevance ([0010]-[0013]),

assigning an evaluation priority to each component region on the basis of the relevance of the objects detected in the component region ([0010]-[0013]; [0046]),

subjecting each of the plurality of component regions to a type of evaluation based on the evaluation priority assigned to each component region ([0013]; [0031] lines 26-28; [0040]-[0041]; [0046]), and

issuing a warning (10; [0032] lines 1-5).

Kishida further teaches that the perception region is restricted to the lane ([0013]). Kishida does not explicitly teach defining a tolerance region next to said lane, restricting the perception region to the lane and the tolerance region or issuing a warning to a driver of the road vehicle based on a result of the evaluation.

Tolerances are often included in engineering applications to account for variations in system components and objects being viewed. As Nishigaki et al. suggests, tolerances are often included in image processing and distance calculations

in an object recognition system (col. 7, lines 1-19). Although such tolerances apply to the calculation of distances, one of ordinary skill in the art would recognize the need for tolerances, especially in view of pixel performance (col. 7, lines 3-5) as well as the possible location of relevant objects just outside or between lanes (see, for example, Maekawa Figure 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a tolerance region with the lane, so as to account for variations in imaging performance, as taught by Nishigaki et al., and to account for relevant object outside or between lanes, as seen in the teachings of Maekawa.

Also, in regards to the size of the perception region (i.e. lane region + tolerance region), the limitations of the claim can be construed as a discussion of optimum value for the perception region. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a perception region equal to a lane region plus a tolerance region, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Morcom teaches issuing a warning to a driver of the road vehicle based on a result of the evaluation of data for the benefit of warning an operator of a dangerous situation (pg. 1, lines18-19; pg. 7, lines 15-16; pg. 15, lines 18-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the alarm unit, taught by Kishida, issue a warning to a driver of the road vehicle

based on a result of the evaluation of data for the benefit of warning an operator of a dangerous situation and allow the operator to make corrections to limit the danger.

17. In view of **claim 10**, Kishida teaches a method for sensing the surroundings in front of a road vehicle by means of a surroundings sensing system, in which surroundings data is obtained by means of a surroundings sensor, and objects are detected by processing the surroundings data (Abstract; [0047] line 8; [0002]), the method comprising:

defining a perception region corresponding to a partial region of a region sensed by the surroundings sensor ([0013]; [0042] lines 6-9),

defining a lane, defining a region outside said lane ([0013]; [0046]),

dividing the perception region into a plurality of component regions ([0013]),

sensing surroundings within the perception region via a surroundings sensor to obtain surroundings data ([0030], lines 9-15),

processing the surroundings data to detect objects ([0030] lines 13-15),

assigning a priority to each component region on the basis of the detected objects ([0046]),

subjecting component regions to a multi-stage evaluation based on the evaluation priority assigned to the component regions ([0013]; [0031] lines 26-28), and

issuing a warning (10; [0032] lines 1-5).

Kishida further teaches that the perception region is restricted to the lane ([0013]). Kishida does not explicitly teach defining a tolerance region next to said lane, restricting the perception region to the lane and the tolerance region or issuing a warning to a driver of the road vehicle based on a result of the evaluation.

Tolerances are often included in engineering applications to account for variations in system components and objects being viewed. As Nishigaki et al. suggests, tolerances are often included in image processing and distance calculations in an object recognition system (col. 7, lines 1-19). Although such tolerances apply to the calculation of distances, one of ordinary skill in the art would recognize the need for tolerances, especially in view of pixel performance (col. 7, lines 3-5) as well as the possible location of relevant objects just outside or between lanes (see, for example, Maekawa Figure 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a tolerance region with the lane, so as to account for variations in imaging performance, as taught by Nishigaki et al., and to account for relevant object outside or between lanes, as seen in the teachings of Maekawa.

Also, in regards to the size of the perception region (i.e. lane region + tolerance region), the limitations of the claim can be construed as a discussion of optimum value for the perception region. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a perception region equal to a lane region plus a tolerance region, since it has been held that discovering an optimum value

of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Morcom teaches issuing a warning to a driver of the road vehicle based on a result of the evaluation of data for the benefit of warning an operator of a dangerous situation (pg. 1, lines18-19; pg. 7, lines 15-16; pg. 15, lines 18-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the alarm unit, taught by Kishida, issue a warning to a driver of the road vehicle based on a result of the evaluation of data for the benefit of warning an operator of a dangerous situation and allow the operator to make corrections to limit the danger.

18. With respect to **claim 2**: Kishida is silent how the lane is detected or defined. A lane being detected by image processing is a known method to determine lane position as taught by Morcom (page 2, line 34 through page 3, line 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made have the method taught by Kishida combined with defining the lane by detecting the lane by image processing, as taught by Morcom, as a person with ordinary skill in the art has good reason to pursue the known options within his/her technical grasp.

19. Claims 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishida, Nishigaki, Maekawa, and Morcom as applied to claim 1 above, and further in view of Saka et al. (US 6,792,147).

20. With respect to **claims 4-5**, Kishida, as modified above, teaches all of the limitations of claim 1, as explained above. Kishida teaches that objects are detected using the disclosed sensor system, but does not explicitly teach that the object perception is achieved by image processing methods or that object classification occurs to rule out false alarms. Kishida does teach data processing to determine the type of object ([0016]). Further, Morcom does allow for image acquisition for conveying to the driver (page 11, lines 21-31).

Saka discloses an object recognition system for use in object perception, wherein an infrared image sensor detects IR light reflected from an object (col. 4, lines 55-56). Saka further teaches that the data obtained by the image sensor is processed to allow for object recognition of the vehicle ahead (col. 6, lines 19-33). Saka further discloses that the object classification is carried out by image processing methods, specifically horizontal edge evaluation techniques, so as to classify the object as a relevant vehicle or irrelevant (col. 9, lines 25-43), thus ruling out false alarms.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide object recognition and classification via image processing techniques so as to rule out false alarms, as taught by Saka.

21. With respect to **claim 6**, Kishida teaches determining the distance to objects ([0040] lines 11-14).

22. With respect to **claim 9**, the combination of Kishida, Nishigaki, Maekawa, and Morcom is silent with regards to the surroundings sensing system being a night vision system. However, Morcom does disclose the use of NIR wavelengths, which are used in night vision systems, to allow for use in rain, snow, and fog. Saka teaches that imaging system employed for object recognition in a vehicle can employ infrared systems so as to allow for nighttime use (col. 4, lines 50-56). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an IR vision system so as to allow for object recognition at night, as taught by Saka.

23. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kishida, Nishigaki, Maekawa, Morcom, and Sake as applied to claim 4 above, and further in view of Falbish et al. (European Patent Application Publication # 0544468 A2).

The combination of Kishida, Nishigaki, Maekawa, Morcom, and Sake disclose all the limitations of claim 4, as explained above. It is noted that claim 7 does not depend upon claim 4, but claim 4 contains limitation regarding object perception relevant to the limitations of claim 7. However, the combination does not specifically recite the limitation of sensing the movement of objects. Saka teaches determination of location and distance, but does not specifically mention calculating the velocity of objects. Kishida contains a similar disclosure in that regard.

Falbish teaches an object tracking system (Fig. 1) for use with a vehicle similar to that proposed by Saka (Fig. 1, col. 4, line 60 through col. 5, line 15). Falbish further teaches that such a system can be used to track a number of targets and to calculate

the velocity of the object (col. 11, lines 44-51). As would be evident to one of ordinary skill in the art, such information could be used to differentiate between moving vehicles and stationary vehicles, which could be used in determination of collision scenarios.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide tracking of targets by calculation of target velocity, as taught by Falbish, so as to provide information between moving and stationary vehicles for collision assessment analysis.

Conclusion

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAROLYN IGYARTO whose telephone number is

(571)270-1286. The examiner can normally be reached on Monday - Thursday, 7:30 A.M. to 5 P.M. E.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CI

/David P. Porta/
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